

**GLOBAL ENERGY AND WATER CYCLE EXPERIMENT  
(GEWEX)  
AND  
THE CONTINENTAL-SCALE INT'L PROJECT (GCIP)**



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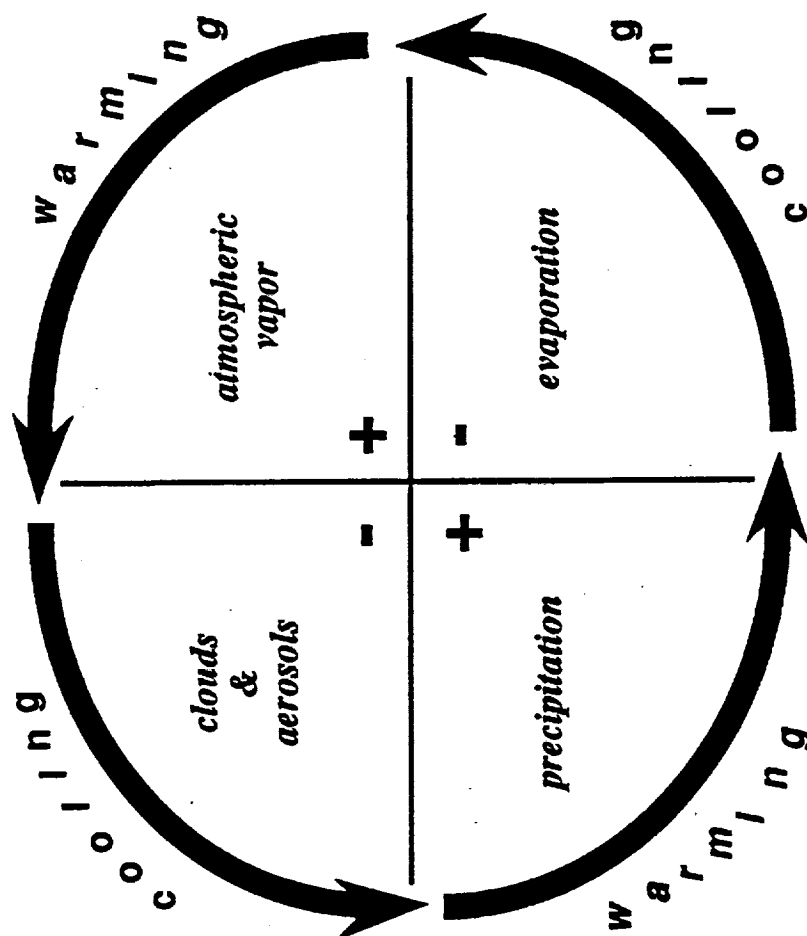
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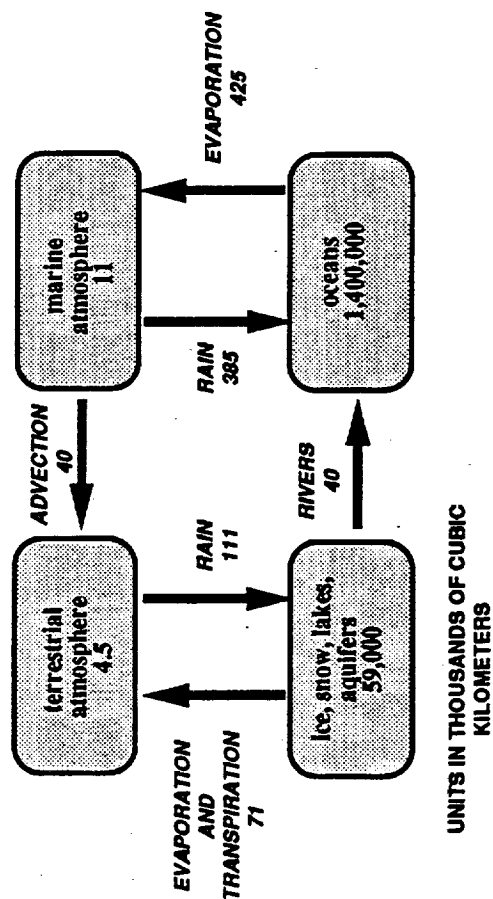
## The Complex Role of Water in Climate Processes



## GEWEX OBJECTIVES



### ESTIMATE OF THE GLOBAL WATER CYCLE FLUXES AND RESERVOIRS



- DETERMINE THE HYDROLOGICAL CYCLE BY GLOBAL MEASUREMENTS
- MODEL THE GLOBAL HYDROLOGICAL CYCLE
- IMPROVE OBSERVATIONS AND DATA ASSIMILATION
- PREDICT RESPONSE TO ENVIRONMENTAL CHANGE



BASELINE SURFACE  
RADIATION NETWORK  
(BSRN)

SURFACE RADIATION  
BUDGET PROJECT  
(SRB)

## RADIATION

GEWEX WATER  
VAPOR PROJECT  
(GVAP)

GEWEX CLOUD SYSTEM  
STUDY  
(GCSS)

INT'L SATELLITE  
CLOUD CLIMATOLOGY  
PROJECT  
(ISCCP)

GLOBAL PRECIPITATION  
CLIMATOLOGY PROJECT  
(GPCP)

GLOBAL RUNOFF  
DATA CENTRE  
(GRDC)

INT'L SATELLITE  
LAND SURFACE  
CLIMATOLOGY  
PROJECT  
(ISLSCP)

GEWEX  
CONTINENTAL-SCALE  
INT'L PROJECT  
(GCIP)

## CLOUD AND PRECIPITATION SYSTEMS

## HYDROMETEOROLOGY

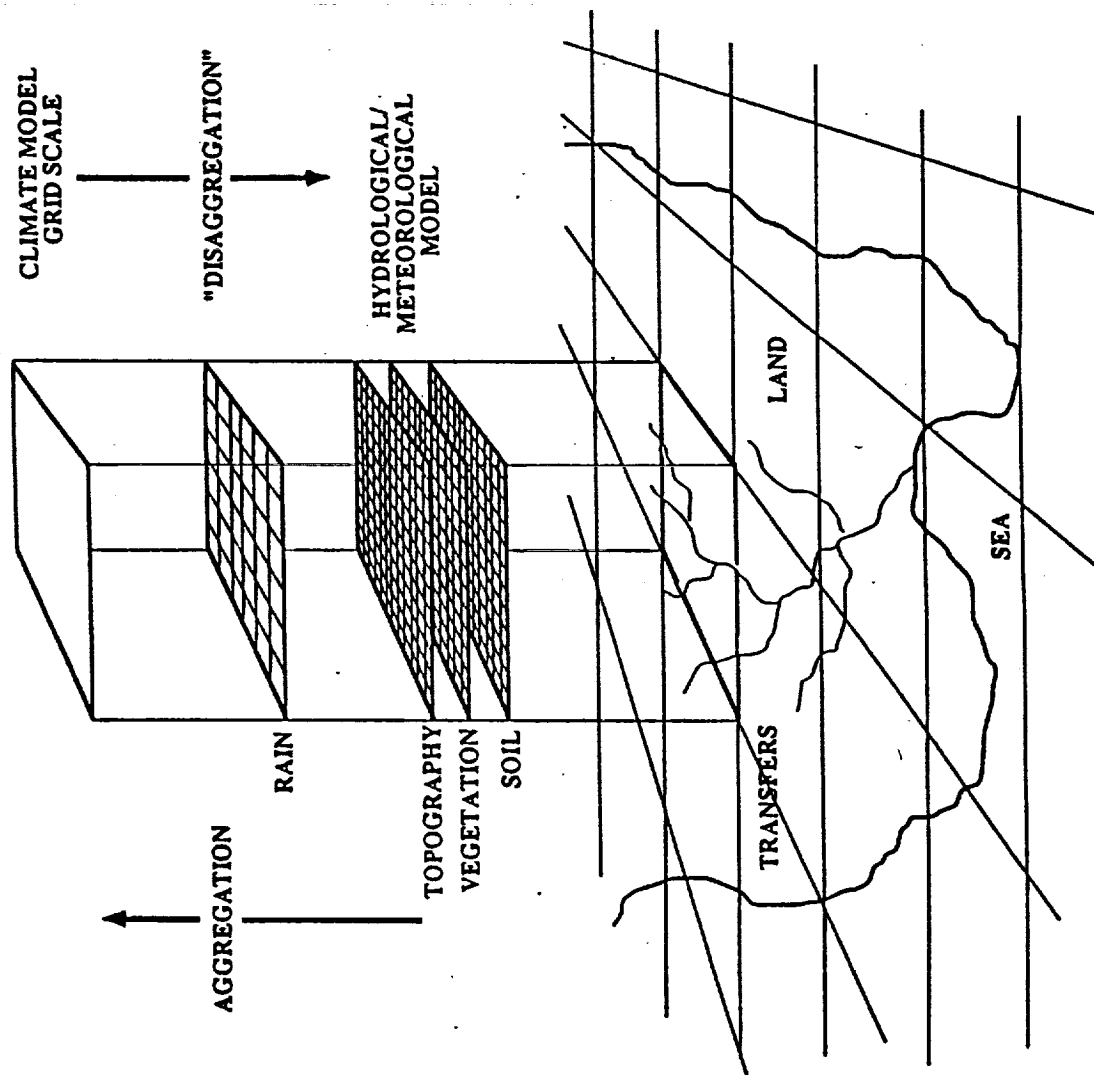
## GCIP OBJECTIVES

**GCIP**



- DETERMINE TIME/SPACE VARIABILITY OF HYDROLOGICAL CYCLE OVER A CONTINENTAL-SCALE REGION
- DEVELOP MACRO-SCALE HYDROLOGIC MODELS, COUPLED TO ATMOSPHERIC MODELS
- DEVELOP INFORMATION RETRIEVAL SCHEMES
- SUPPORT REGIONAL CLIMATE CHANGE IMPACT ASSESSMENT

# GCIP STRATEGY: DEVELOPING COUPLED LAND-SURFACE/ATMOSPHERE MODELS



# GCIP, GCSS, AMIP AND SCALE-INTERACTIVE MOIST PROCESSES



## ATMOSPHERIC MODEL INTERCOMPARISON PROJECT (AMIP)

- CLIMATE/GCM INTERCOMPARISONS
- REGIONAL DISTRIBUTION AND NATURE OF CLIMATOLOGY ERRORS
- FOCUS ON "FAST" COMPONENT OF CLIMATE

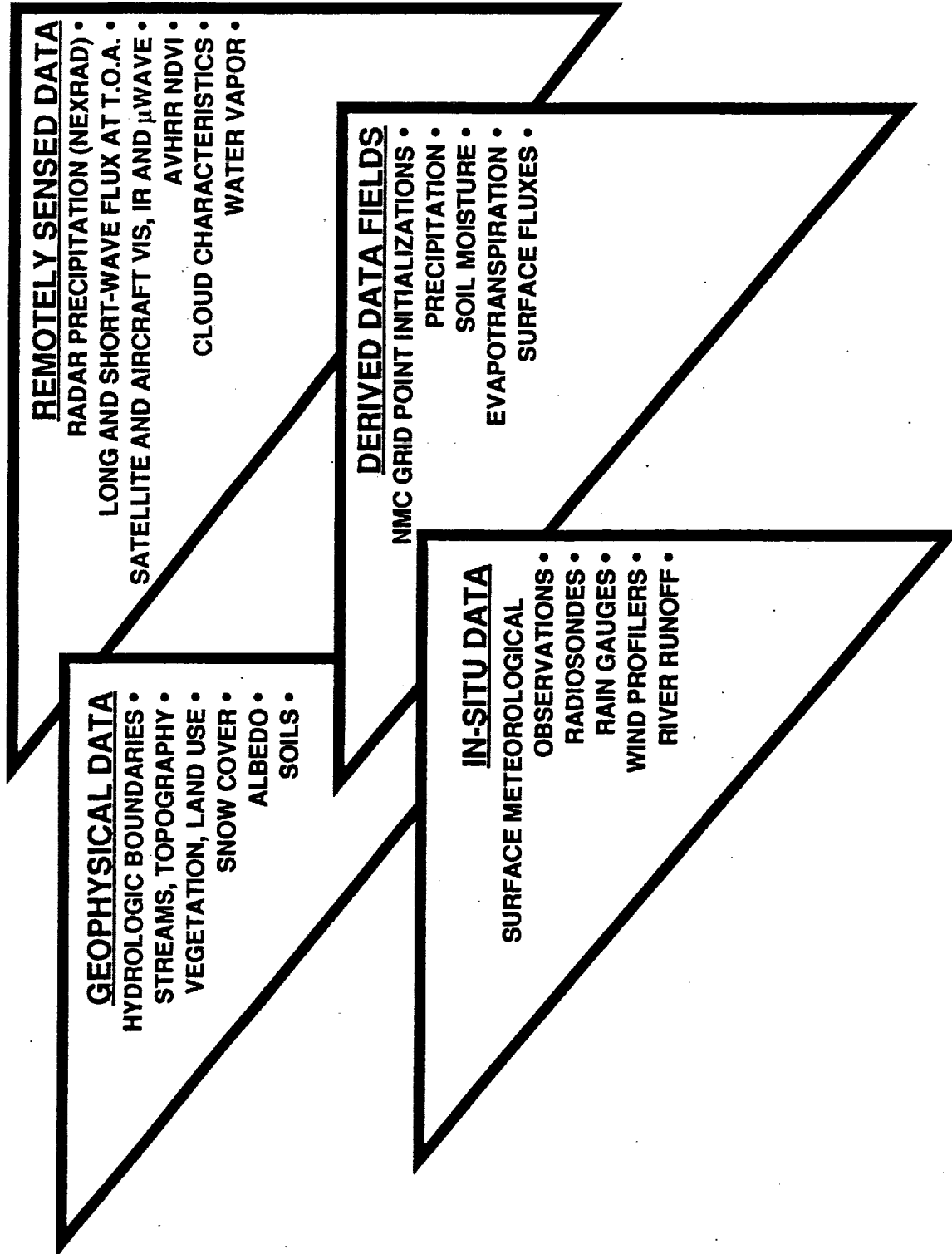
## GEWEX CONTINENTAL-SCALE INTERNATIONAL PROJECT (GCIP)

- COORDINATE WITH AMIP:
- REGIONAL SKILL OF GCMs vs MESO MODELS
- COORINATE WITH GCSS:
- TEST GCSS-DEVELOPED MOIST PARAMETERS ON REGIONAL SCALE

## GEWEX CLOUD SYSTEM STUDY (GCSS)

- MULTI-SCALE INVESTIGATIONS OF CLOUD PROCESSES JOINS OBSERVATIONS AND MODELS
- DEVELOP NEW CLOUD, CONVECTION PARAMETERS
- USE TRAILFINDER/ARM SITES AS MAJOR DATA SOURCE

# GCIP DATABASE





## **GCIP FIELD CAMPAIGNS**

- **FEW, FOCUSED**
  - **TEST MODELS**
  - **VALIDATE REMOTE SENSING DATA**
- **COOPERATIVE MULTISCALE EXPERIMENT  
SPRING/SUMMER '95 (CMES)**
  - **STUDY MESOSCALE CONVECTIVE SYSTEMS  
IN CENTRAL U.S.**
  - **USWRP, DOE/ARM, FAA, GVAP, GCSS, GCIP**
- **1996/97 (?)**
  - **VALIDATE FLUX MODELS FORCED BY  
REMOTE SENSING AND IN-SITU DATA**

